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Case No.: 54567US013

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First Named Inventor: VON JAKUSCH, EGBERT A.
Application No.: 09/856416 Confirmation No.: 7900
Filed: November 2, 1999 Group Art Unit 3761
Title: NON-WOVEN ADHESIVE TAPE FOR THE MANUFACTURING
OF A DIAPER CLOSURE SYSTEM

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
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08/07/07

J. Han

Date

Signed by: Irina Hass

Dear Sir:

This is an appeal from the Office Action mailed on March 2, 2007, in light of the Advisory Action mailed June 4, 2007, finally rejecting claims 1, 2, 4-10, 17 and 18.

Fees

- ☒ Any required fee under 37 CFR § 41.20(b)(2) will be made at the time of submission via EFS-Web. In the event fees are not or cannot be paid at the time of EFS-Web submission, please charge any fees under 37 CFR § 1.17 which may be required to Deposit Account No. 13-3723.
- ☐ Please charge any fees under 37 CFR §§ 37 CFR § 41.20(b)(2)1.16 and 1.17 which may be required to Deposit Account No. 13-3723. (One copy of this sheet marked duplicate is enclosed.)
- ☒ Please charge any additional fees associated with the prosecution of this application to Deposit Account No. 13-3723. This authorization includes the fee for any necessary extension of time under 37 CFR § 1.136(a). To the extent any such extension should become necessary, it is hereby requested.
- ☒ Please credit any overpayment to the same deposit account.

A Notice of Appeal in this application was mailed on June 7, 2007, and was received in the USPTO on June 7, 2007.

Appellants request the opportunity for a personal appearance before the Board of Appeals to argue the issues of this appeal. The fee for the personal appearance will be timely paid upon receipt of the Examiner's Answer.

REAL PARTY IN INTEREST

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

STATUS OF CLAIMS

Claims 1, 2 and 4-18 are pending. Claims 11-16 are withdrawn. Claims 1, 2, 4-10, 17 and 18 stand rejected. The rejection of claims 1, 2, 4-10, 17 and 18 is appealed.

STATUS OF AMENDMENTS

An amendments has been filed after the final rejection, which has been indicated in the advisory action dated June 4, 2007 as to be entered upon filing of appeal.

SUMMARY OF CLAIMED SUBJECT MATTER

Claims	Exemplary Support
An adhesive tape comprising a backing comprising a fibrous woven or nonwoven layer of thermoplastic polymer fibers,	Page 4 lines 29-30
said backing having a first side formed of said fibrous layer with a silicone release layer	Page 4 line 31
and a second side of the backing opposite the first side having thereon a pressure sensitive adhesive layer,	Page 5, line 5
said silicone release layer comprising a cured	Page 5, line 2-3

reaction product of a curable composition	
comprising (i) a polydialkylsiloxane having acrylate and/or methacrylate groups and	Page 5, lines 3-4, page 7 line 6
(ii) an organic compound free of silicon and comprising at least two reactive groups selected from an acrylate or a methacrylate group,	Page 5, lines 4-5, page 7 lines 9-10
said adhesive tape having a 90° peel adhesion of at least 6 N/2.54cm relative to a polyethylene film surface	Page 5, lines 5-7
and said adhesive tape having a 90° peel adhesion Keil test value of not more than 1 N/2.54cm,	Page 5, line 7
wherein the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups of said polydialkylsiloxane is between 10 and 15	Page 7, lines 6-8
and wherein said organic compound has a viscosity of at least 500mPa s at 25°C.	Page 7, line 11

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection

Claims 1-2, 4-10, 17 and 18 stand rejected under 35 USC § 103(a) as purportedly unpatentable over the combined teachings of Tuschy et al. (WO 96/21413 a1) in view of Nguyen et al. (US 5,616,629 A) and Newman et al. (US 3,716,437).

ARGUMENT

§ 103 Rejections

Claims 1-10, 17 and 18 stands rejected under 35 USC § 103(a) as being unpatentable over Tuschy et al. (WO 96/21413 a1) in view of Nguyen et al. (US 5,616,629 A) and Newman et al. (US 3,716,437).

The present invention relates to, in independent claims 1 and 8, an adhesive tape intended for use on a diaper or like articles where it is required that the tape be soft and gentle to the touch due to the fact that it is used adjacent a babies sensitive skin. The need being addressed is for a tape or tape laminate that is provided in a roll form that is cloth-like and can be easily unwound without delaminating or contaminating the adhesive with fibers.

A way to provide this type of cloth like feel is to use as the tape backing a fibrous tape backing and particularly a fibrous tape backing of thermoplastic fibers. The issue with these types of fibrous tape backings is that conventional thermoplastic pressure sensitive adhesives tend to bond very strongly to thermoplastic fibers. As such the adhesive can cause the backing to delaminate or fibers can be transferred to the adhesive contaminating the adhesive. Adhesive contamination by fibers of the backing is reflected in a lowering of the 90° peel adhesion of the tape after it is unwound from a roll, as is defined in the specification, for example, at page 22 line 20 on. A high 90° peel adhesion is a property recited as required in claims 1 and 8.

A further problem is that thermoplastic fibrous backings, such as nonwovens, is that they are porous allowing release coatings applied thereto to penetrate into the fibrous backing. This decreases the effectiveness of conventional release compositions. Namely the release compositions penetrate into the fibrous material below the outer surface of the fibrous backing taking the release composition out of contact with the adhesive when the tape is in a roll form.

This will result in an increase in the 90° Kiel adhesion (this is the adhesion of the nonwoven tape to itself when in a roll). It is important as such that the release composition be of sufficient viscosity such that it remains on the top of the fibrous thermoplastic nonwoven backing and does not migrate into the fibrous backing when applied. Claim 1 was amended after final by adding in the limitation of claim 3 regarding the relatively high viscosity of the added organic compound. This feature however is also reflected in the originally recited low 90° Kiel adhesion values recited in claims 1 and 8. If the 90° Kiel adhesion value were high this would mean the claimed release composition had penetrated into the fibrous backing.

The applied reference Tuschy describes a closure tape laminate, where the backing is disclosed as possibly being a nonwoven. The focus of Tuschy was not the backing per se but how to create a stable roll where a mechanical fastener (30), namely a hook material, is provided on the adhesive face of the tape laminate that is then rolled up into a roll format. The problem with this added mechanical fastener (30) provided on the adhesive face of the tape laminate is that it acts as a spacer so that the adhesive face of the tape laminate is not in direct contact with the tape backing, which backing could be release coated. The hook fastener rather than the adhesive (24) comes into contact with the opposite face of the backing (21) when it is in a roll. As such there is insufficient adhesion between the adhesive coated face of the tape laminate and the optionally release coated backing. The hook fastener face of the tape laminate can slide when in contact with the optionally release coated backing (21). This results in a tape laminate, which in roll form, that can become unstable by telescoping or the like, due primarily to the lack of friction or adhesion between the backing (21) and the hook mechanical fastener (30). Tuschy as such was not concerned with how to deal with the problem of too much adhesion between the adhesive (24) and the backing (21), in fact, Tuschy's concern was in the exact opposite direction. Tuschy was concerned with the hook mechanical fastener lowering the adhesion or friction between the front adhesive coated face of his tape laminate and the back of his tape laminate to a level where the tape laminate became unstable when in a roll form.

Release coatings, although mentioned in Tuschy as possible, would have been of very low concern. Increasing the release properties of the backing would have actually been undesirable in Tuschy. Release coatings would inherently tend to decrease friction between with hook mechanical fastener and the back of Tuschy's tape laminate increasing the probability that the tape laminate would become unstable when in a roll form.

Applicants, in contrast to Tuschy, were concerned with the problem of too much adhesion in a particular type of tape product construction. Namely applicants were concerned with a tape in roll form where there is intended direct adhesive contact of a backside of the tape backing (21) to an adhesive coated face (24) of the tape backing (21), in the very particular circumstance where the tape backing nonadhesive coated face is a thermoplastic fibrous web.

The rejection starts by making selections in Tuschy relative to the broad array of backings described in Tuschy then goes to the secondary reference Nguyen et al to select the particular release coatings to be substituted into selected backing taken from the primary Tuschy reference.

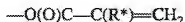
Nguyen et al initially describes using a disposable release liner covered tape rather than coating the backing of a tape that is intended to be wound on itself. The structure of the Nguyen et al tape product as such is very different than that of Tuschy or that claimed by applicants. Further the release composition teaching relied on Nguyen et al does not teach in the direction of applicant's claimed invention, but rather the opposite direction.

Nguyen et al wanted to increase the level of adhesion between their removable release liner and the adhesive of the release liner covered PSA tape (note col. 3, lines 3-6). This was to keep the liner from too readily removing during highspeed production processes. To do this, Nguyen et al requires that a tackifying material is added to the generic organopolysiloxanes described, namely generic organopolysiloxanes that are e.g., acrylic, epoxy or vinyl ether functional. The tackifying materials used by Nguyen et al are what are commonly termed MQ resins, Nguyen et al's organosiloxane copolymer component B.

(B) an organosiloxane copolymer represented by the formula



wherein in Formula (II), each R is independently a hydrocarbon group or a group represented by the formula



wherein R* is hydrogen or a methyl or ethyl group; x is a number from about 0.25 to about 75; y is a number from about 1 to about 56; and the ratio of x to y is from about 0.3:1 to about 1.5. In one embodiment, the inventive release composition further comprises

Starting with Nguyen et al, to be able to achieve the release value required for the claimed tapes and tape laminates initially this MQ resin required by Nguyen et al would need to be eliminated by one of skill in the art. Then one of skill in the art would need to further modify the teachings in Nguyen et al and make detailed selections of particular organopolysiloxanes (component A) disclosed in Nguyen et al and select particular optional acrylates (component C) disclosed in Nguyen et al. These selections would need to be made to provide a release composition that had properties not desired by Nguyen et al in a tape construction not disclosed by Nguyen et al.

The inadequacy of the formulations proposed by and teachings of Nguyen et al in applicants claimed construction is also clearly evident by looking at applicants comparative examples (e.g. C3 and C4) in the case as originally filed. Applicant's comparative examples C3 and C4 use the only two acrylate type organopolysiloxanes (RC 726 and RC 708) suggested and exemplified by Nguyen et al. Nguyen et al examples 1-23 utilize these acrylate organopolysiloxanes (both are actually based on RC 726 which, as reported in applicants C3 and C4, has a ratio, of the average number of dialkylsiloxane units to the average number of acrylate

and methacrylate groups of the polydialkylsiloxane, of 18). The remainder of the Nguyen et al examples (examples 24-35) are epoxy functional organopolysiloxanes.

In applicants C4, without Nguyen et al's required adhesion increasing MQ resin, RC 726 polydialkylsiloxane did not properly cure resulting in the release coating contaminating the adhesive (poor 90 degree peel values from a polyethylene film after the tape was unwound). Nguyen et al adds MQ resin to RC 726 organopolysiloxane, used in applicants C4 counterexample, to increase the peel value for it's release liners (Table 1 examples 1-5 and 8-23). This MQ resin may help the Nguyen et al RC 726 systems cure but would increase the 90° Kiel adhesion of RC 726 based release compositions in applicants claimed construction to undesirable values, as evidenced by the RC708 based release systems in applicants comparative example C3.

Applicants comparative example C3 utilized Nguyen et al second acrylate organopolysiloxane RC 708. Use of RC 708 in C3 resulted in a release system that in applicants tape construction that had a 90° Kiel adhesion well above that required in applicant's claims. RC 708 has an MQ resin blended in with RC 726. This confirms exactly what Nguyen et al teaches, namely to add in MQ resins to increase the release values for acrylic, epoxy or vinyl ether functional organopolysiloxanes. Applicant's comparative example C3 shows that adding MQ resins, as required with all the formulations proposed by Nguyen et al, are not suitable for obtaining applicants claimed construction.

Nguyen et al provides no teaching or suggestions on how to modify their acrylic, epoxy or vinyl ether functional organopolysiloxane (components A in Nguyen et al.) per se to adjust the release values of release compositions based on these acrylic, epoxy or vinyl ether functional organopolysiloxanes. There is no importance assigned to what acrylic, epoxy or vinyl ether functional organopolysiloxane is selected and particularly no suggestion whatsoever of selecting particular types of polydialkylsiloxanes having acrylate and/or methacrylate groups for use with a fibrous tape backing as required in applicants amended claim 1 (or claim 10). If fact the acrylic, epoxy or vinyl ether functional organopolysiloxanes could be any of a broad range of organopolysiloxanes "known in the art" (col 3 line 60).

The only teaching on how to modify release values of the acrylic, epoxy or vinyl ether functional organopolysiloxanes in Nguyen et al is by adding in MQ resins to the acrylic, epoxy or vinyl ether functional organopolysiloxanes (components A in Nguyen et al) to increase the release levels for a release liner. This is exemplified in that the lowest release values (e.g.

examples 10 and 11 in Nguyen et al) are obtained when low levels of MQ resin are used. However these are less preferred examples in Nguyen et al. Nguyen et al fails to teach anything about how to modify the acrylic, epoxy or vinyl ether functional organopolysiloxanes (components A in Nguyen et al) to raise or lower the release characteristics and select appropriate (meth) acrylate organic compounds so as to simultaneously create a composition that is properly curable and can be coated onto a thermoplastic fibrous backing without overly penetrating.

Nguyen et al also provides no teaching or suggestions on how to modify their release system as a whole to ensure the release system will not penetrate into a thermoplastic fibrous fabric. This is important in applicants invention so as to maintain a sufficient low release value such that the adhesive does on the opposite face of the tape does not pick off fibers and become contaminated, as represented in a high peel adhesion to a polyethylene film after it has been unwound from the roll. Of course this is the opposite direction that Nguyen et al is directing one of skill in the art. Nguyen et al as discussed above wants high release values.

Nguyen et al also provides no teaching or suggestions on how to modify their release system to be functional on a tape fibrous backing without its required MQ resin.

In summary the rejection fails to take into account the many deficiencies in the primary combination of Tuschy and Nguyen et al.

- 1) Tuschy is concerned with how to increase friction between the adhesive coated side of a tape laminate to it's backing to keep the roll stable and prevent telescoping.
- 2) Nguyen et al is likewise concerned with how to increase adhesion between an adhesive coated tape and a release liner. It is not a roll tape product as in Tuschy. As such if one of skill in the art were to combine Nguyen et al with Tuschy there would be no reason to modify the release formulations of Nguyen et al.
- 3) Applicants are concerned with how to decrease adhesion between the adhesive coated side of a tape to it's fibrous backing, which tape is in a roll form.
- 4) The specific acrylic functional organopolysiloxanes proposed by Nguyen et al, as evidenced by applicants comparative examples C3 and C4, would not work in applicants fibrous tape construction.

- 5) Nguyen et al teaches a very broad range of acrylic, epoxy or vinyl ether functional organopolysiloxanes and has no teachings on selecting a particular subset of organopolysiloxanes and optimizing it by adjusting the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups (as per applicants claims 1 and 10); then further eliminating Nguyen et al required MQ resin; and then further selecting a particular subset of its optional organic compounds.

The lack of teachings in Nguyen et al. are simply characterized as mere optimization that could be carried out by one of skill in the art. But there needs to be some standards or all inventions relying on use of compositions using known components could be dismissed as mere optimization. In this case the primary references themselves both point in the opposite direction as the claimed invention and mutually are directed at two very different products. The applied references also provide no guidance on how to modify the formulations of Nguyen et al in the manner proposed to address any problem much less the problem addressed by the claimed tape construction. Regarding the standards typically applied relative to routine optimization in the context of chemical or composition type inventions (applicants however are not claiming a chemical composition, just the use of a particular range of a chemical compositions in a particular structure), there is no suggestion in the references that adjusting the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups (as per applicants claims 1 and 10) is a known result effective variable within the context of applicants claimed invention.

Nor is there a suggestion that using an organic compound free of silicon and comprising at least two reactive groups selected from an acrylate or a methacrylate group and a viscosity of at least 500mPa s at 25°C with the particular organopolysiloxane is a known result effective variable within the context of the construction of applicants claimed invention.

Nor is there a suggestion in any of the references that using an organic compound free of silicon and comprising at least two reactive groups selected from an acrylate or a methacrylate in particular ratios with the polydialkylsiloxane having acrylate and/or methacrylate groups as per claims 17 and 18 has any effect.

Newman et al. (US 3,716,437) teaches nothing other than pressing a nonwoven into a film to increase its strength. The nonwoven gets incorporated into the film.

The art applied fails to teach or suggest applicant's claimed invention.

CONCLUSION

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application. Please reverse the Examiner on all counts.

Respectfully submitted,

Date

By: _____

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3M Innovative Properties Company
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CLAIMS APPENDIX

1. (amended after final) An adhesive tape comprising a backing comprising a fibrous woven or nonwoven layer of thermoplastic polymer fibers, said backing having a first side formed of said fibrous layer with a silicone release layer and a second side of the backing opposite the first side having thereon a pressure sensitive adhesive layer, said silicone release layer comprising a cured reaction product of a curable composition comprising (i) a polydialkylsiloxane having acrylate and/or methacrylate groups and (ii) an organic compound free of silicon and comprising at least two reactive groups selected from an acrylate or a methacrylate group, said adhesive tape having a 90° peel adhesion of at least 6 N/2.54cm relative to a polyethylene film surface and said adhesive tape having a 90° peel adhesion Keil test value of not more than 1 N/2.54cm, wherein the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups of said polydialkylsiloxane is between 10 and 15 and wherein said organic compound has a viscosity of at least 500mPa s at 25°C.

2. (Original) An adhesive tape according to claim 1 wherein said backing comprises a laminate of said fibrous layer and a plastic film layer.

3. (Canceled)

4. (Original) An adhesive tape according to claim 1 wherein said polydialkylsiloxane is a polydimethylsiloxane.

5. (Original) An adhesive tape according to claim 1 wherein said adhesive layer comprises a rubber based adhesive comprising a tackifying resin.

6. (Original) An adhesive tape according to claim 5 comprising styrene-isoprene-styrene block copolymers.

7. (Original) An adhesive tape according to any of the previous claims in the form of a roll.

8. (Original) A prelaminated composite tape in a roll from which a composite adhesive closure tab for an absorbent article can be cut,

the prelaminated composite tape including an adhesive tape comprising a backing comprising a fibrous woven or nonwoven layer of thermoplastic polymer fibers, said backing having said fibrous layer with a silicone release layer and a second side of the backing opposite to the first side having hereon a pressure sensitive adhesive layer, said silicone release layer comprising a cured reaction product of a curable composition comprising (i) a polydialkylsiloxane having acrylate and/or methacrylate groups and (ii) an organic compound free of silicon and comprising at least two reactive groups selected from an acrylate or a methacrylate group,

said adhesive tape having a 90° peel adhesion of at least 6 N/2.54cm relative to a polyethylene film surface and a Keil test value of not more than 1 N/2.54cm,

a first axial extending section of the backing having a mechanical fastener disposed on the pressure sensitive adhesive layer,

and a second axial extending section of the backing has an exposed pressure sensitive adhesive layer for attaching to an edge portion of an absorbent article.

9. (Original) A prelaminated composite tape according to claim 8 wherein said backing comprises a laminate of a fibrous layer and a polymeric film.

10. (Original) A prelaminated composite tape according to claim 8 wherein the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups of said polydialkylsiloxane is between 10 and 15 and said organic compound has a viscosity of at least 500mPa s at 25°C.

11. (Withdrawn) Absorbent article comprising an adhesive closure tape attached to an edge portion, the adhesive closure tape comprising a backing comprising a fibrous woven or nonwoven layer of thermoplastic polymer fibers, said backing having a first side formed of said fibrous layer with a silicone release layer and a second side of the backing opposite the first side having thereon a pressure sensitive adhesive layer, said silicone release layer comprising a cured

reaction product of a curable composition comprising (i) a polydialkylsiloxane having acrylate and/or methacrylate groups and (ii) an organic compound free of silicon and comprising at least two reactive groups selected from an acrylate or a methacrylate group, said adhesive tape having a 90° peel adhesion of at least 6 N/2.54cm relative to a polyethylene film surface and said adhesive tape having a Keil test value of not more than 1 N/2.54cm,

a first section of the adhesive closure tape being adhered to the edge portion of the absorbent article by said pressure sensitive adhesive layer and

a second section of the adhesive closure tape having a mechanical fastener disposed on the pressure sensitive adhesive layer,

and the absorbent article further comprising on the outside surface a mechanical fastener capable of engaging with the mechanical fastener of the adhesive closure tape.

12. (Withdrawn) A method of making a release coated backing having a fibrous layer of woven fibers or of non-woven fibers of thermoplastic polymer, comprising the steps of coating a curable silicone release coating composition on the fibrous layer of the backing and curing the thus applied silicone release coating by exposing it to actinic radiation or heat, said curable silicone release coating composition comprising

(i) a polydialkylsiloxane having acrylate and/or methacrylate groups and the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups being between 10 and 15, and

(ii) an organic compound free of silicon and comprising at least two reactive groups selected from the group consisting of an acrylate and a methacrylate group, said organic compound free of silicon having a viscosity of at least 500mPa s at 25°C, and the weight ratio of said polydialkylsiloxane to said organic compound being between 8:92 and 35:65.

13. (Withdrawn) A method according to claim 12 wherein said curable silicone release coating composition further comprises a photo-initiator and said release coating is exposed to actinic radiation.

14. (Withdrawn) A method for making an adhesive coated tape comprising the steps of providing a release coated backing by the method defined in claim 12 and applying an adhesive layer to the side of the backing opposite to the side having the silicone release coating.

15. (Withdrawn) A release coating composition comprising:

(i) a polydialkylsiloxane having acrylate and/or methacrylate groups and the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups being between 10 and 15,

(ii) an organic compound free of silicon and comprising at least two reactive groups selected from the group consisting of an acrylate and a methacrylate group, said organic compound free of silicon having a viscosity of at least 500mPa s at 25°C, and the weight ratio of said polydialkylsiloxane to said organic compound being between 8:92 and 35:65, and

(iii) optionally a photo-initiator.

16. (Withdrawn) A release coating obtained by curing a release coating comprising:

(i) a polydialkylsiloxane having acrylate and/or methacrylate groups and the ratio of the average number of dialkylsiloxane units to the average number of acrylate and methacrylate groups being between 10 and 15,

(ii) an organic compound free of silicon and comprising at least two reactive groups selected from the group consisting of an acrylate and a methacrylate group, said organic compound free of silicon having a viscosity of at least 500mPa s at 25°C, and the weight ratio of said polydialkylsiloxane to said organic compound being between 8:92 and 35:65, and

(iii) optionally a photo-initiator.

17. (Previously presented) An adhesive tape according to claim 1 wherein the weight ratio of the polydialkylsiloxane to the organic compound is between 8:92 and 35:65.

18. (Previously presented) A prelaminated composite tape according to claim 8 wherein ratio of the polydialkylsiloxane to the organic compound is between 8:92 and 35:65.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.